

Unit 1: Matter and Change

Study Guide

Lab Safety:

1. Describe lab safety procedures and techniques

2. Draw the layout of the lab and label the safety features.

Scientific Method:

1. What are the steps of the scientific method?

2. Provide a sample study (you create) that follows the steps of the scientific method.

Matter:

1. Describe the differences among the different states of matter.
2. Describe the differences between chemical and physical changes.

3. Be able to construct a graph with given data.

Time(min)	Tem p.(F)		Time(min)	Temp (F)
0	212		16	151
1	205		17	149
2	199		18	147
3	193		19	145
4	188		20	143
5	184		21	141
6	180		22	139
7	176		23	137
8	172		24	135
9	169		25	133
10	166		26	131

11	163		27	129
12	160		28	127
13	157		29	125
14	155		30	124
15	153			

4. Describe the differences among elements, compounds, and mixtures, and provide 2 examples of each.

5. Describe the differences between homogeneous and heterogeneous mixtures, and provide 2 examples of each.

6. Calculate potential energy:

a) During a calorimetry experiment, after burning a macadamia nut completely, the temperature of the water in the calorimeter rose from 22 degrees Celsius to 77 degrees Celsius. The amount of water in the calorimeter was 150 mL.

b) During a calorimetry experiment, after burning a marshmallow completely, the temperature of the water in the calorimeter rose from 22 degrees Celsius to 55 degrees Celsius. The amount of water in the calorimeter was 300 mL.

7. Calculate density:

a) The mass of a metal block is 355.5 grams. The dimensions are as follows: Length is 4.2 cm, width is 5.3 cm, and height is 6.8 cm. What is the density of this metal block?

b) The mass of a rock is 48 grams. Using water displacement, the volume rises from 25.6 mL to 55.8 mL. What is the density of the rock?